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FOOD ENGINEERING

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HEALTHY PRODUCTS: ONE TOUGH GAME

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FOOD ENGINEERING

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Publisher of Food Engineering Master Catalog and Food Engineering International
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FOOD ENGINEERING® (ISSN 0193-323X) November 1991, Vol. 63, No. 11. Published monthly by Chilton Company, One Chilton Way, Radnor, PA 19089 (Telephone 215/964-4000). Chilton Co., one of the ABC Publishing Companies, a part of Capital Cities/ABC Inc., New York, NY. Second Class Postage Paid at Wayne, PA 19087 and additional mailing offices. Title registered in U.S. Patent Office
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POSTMASTER: Send form 3579 to Food Engineering, Post Office Box Number 2035, Radnor, PA 19089.

Gov't. fumbling spawns U.S.S.R. food shortages

Inefficiency created by a government-sponsored, centrally-controlled food distribution system is responsible for Soviet food shortage problems, said John Block, president of the National-American Wholesale Grocers' Association (NAWGA). In testimony before the House Agriculture Committee, Block said instituting a private wholesale food distribution system in the U.S.S.R. would improve food distribution.

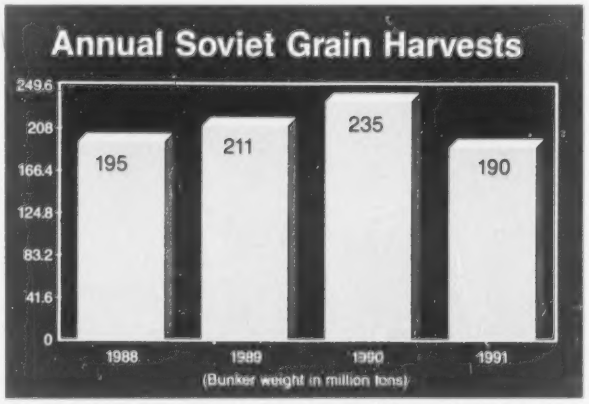
System-wide inefficiencies cause a large discrepency from harvest to procurement. (Source: USDA, ERS.)

"Because of the nature of communism and the near-worthlessness of the ruble, many products in the U.S.S.R. are bartered on the black market," Block said, rather than sold through legitimate channels. "Even if food enters the state-run system, there's often widespread loss of product because no one feels accountable for it—the products belong to no one in particular," Block said.

A wholesale distribution system that allows middlemen to buy from producers and sell to retail outlets ***would promote accountability*** *to the system and help stem the loss of food products, which in some cases can amount to 50 percent, between farm and store. Block added that the U.S. should provide short-term aid to the Soviets to ease food shortages during the winter months. Technical assistance should be provided to help the Soviets improve their production and distribution system, without "doling out dollars," he said.*

... but they won't starve, says USDA

Estimating how much food makes it from the fields to the grainhouses to the stores in the Soviet Union can be a tricky business, according to Ed Cook, USDA economist at the Soviet division of the Economic Research Service. Soviet accounting systems are loosely kept, Cook said, with government reports of harvests often lacking sources and footnotes.



This year's harvest in the Soviet republics was lower than previous years, but certainly not disasterous. (Source: USDA, ERS.)

As an example, in the U.S., grain is cleaned and biological waste (unedible parts such as stalks) are trashed before weighing the harvest, Cook said. However, in the U.S.S.R., waste and excess moisture are counted as part of the harvest (bunker weight)—padding the numbers by six to eight percent. Delays in harvest account for an additional 15 percent loss. And a certain amount slips through the official accounting system to wind up on the black market.

In the past, superlative harvests covered losses caused by processing and distribution inefficiencies. However, this year, the grain harvest was low, but not enough to cause starvation. The real problem is inflation caused by too much money in circulation and subsidies which make prices artificially low, Cook said. The Soviets subsidize consumer prices to the point that shelves are bare. "If bread in the U.S. was 39¢, all our shelves would be bare too," Cook said.

Technology to make Denmark global food processing leader

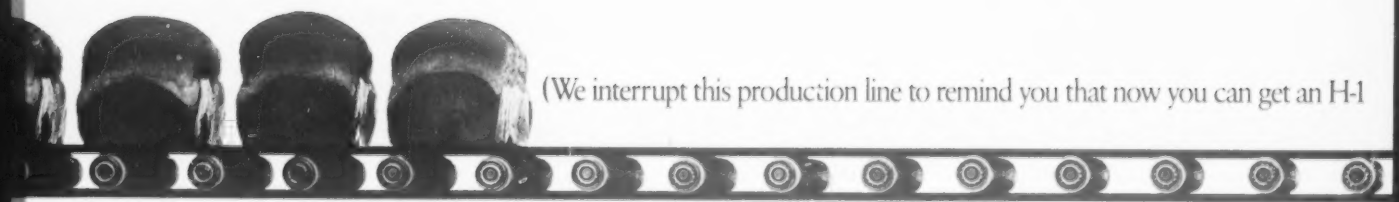
Denmark is a superb location for food processors operating in Europe because of its access to high-quality raw materials, sophisticated research and development capabilities, and a well-developed distribution system; in addition Denmark offers a consumer market with high educational and income standards. As a bonus, the port city of Rotterdam will be part of the ***shipment channel handling foreign trade with Eastern Europe,*** *the Baltic states, Russia and other Soviet republics, according to Erik Juul Jorgensen of the Institute for Food Studies & Agroindustrial Development, Denmark, in a report being prepared for the Danish Ministry of Foreign Affairs, New York City.*

For U.S. companies looking to break into the European Community (EC), Denmark offers a high-tech production base. From 1990 to 2010, meat industry production is expected to double, poultry production to quadruple, dairy products to double, and fish products to double, according to Jorgensen.

Growth Forecast for Danish Food Companies
(In billions of 1990 U.S. dollars)

Industry	1990	2010
Meat	$5.6	$10.9
Poultry	0.2	0.9
Dairy	4.1	7.8
Fish	1.3	3.1
Beverages	1.1	1.6
Other foodstuffs (cereals, oils and fats, fruits, vegetables)	4.1	8.4
Total food production	16.4	32.7

Source: The Institute for Food Studies & Agroindustrial Development.


(We interrupt this production line to remind you that now you can get an H-1

New pectin fat replacer introduced

With word of new natural fat replacers coming fast and furious, Hercules has jumped into the fray with *Slendid*, a new fat mimetic made from pectin.

According to the company, Slendid is a proprietary specialty pectin derived from high-quality citrus peel, with sucrose added for gel strength. This pectin should not be confused with ordinary pectins used for thickening jellies. But Slendid, because it is a hydrocolloid, does exhibit the same thickening and gelling properties.

Hercules' technology is based on the fact that when fat is emulsified, it is sheared into small particles. Gels made with Slendid are also sheared into small particles during processing, with a size range similar to fat.

Slendid was developed to replace up to 100 percent of emulsified fats in products like salad dressings, soups, sauces and frozen desserts. Its heat stability allows it to be used in baking, microwaving and retorting applications as well.

Because of Slendid's bland taste, products do not require major flavor reformulation.

Hercules Incorporated, Hercules Plaza, Wilmington, DE 19894 **Circle 202**

MARKETPLACE

If only they practice what they preach

The average school kid has a good grasp of the basic principles of nutrition, according to a new national Gallup survey. Ninety-eight percent recognize the importance of eating plenty of fruits, vegetables and high-fiber foods, such as whole-grain breads and cereals. However, like their adult counterparts, it remains to be seen whether children act on their nutritional knowledge by eating what they say is good for them.

"Obesity is the number one health problem in this country and it's getting worse," said Paul Lachance, Rutgers professor of food science. According to federal studies, childhood obesity has increased about 54 percent over the last twenty years. Health experts say that the answer to childhood obesity is exercise and healthy diets—not reducing diets. Although kids might know all the right answers, it is an entirely new step to get them to follow through on their knowledge.

Kids earn good marks for nutrition knowledge...
Recognize the importance of eating plenty of fruits, vegetables and high-fiber foods 98%
Can name at least three of the basic food groups 80%
...but overreact to some nutrition messages
Worry about fat and cholesterol 73%
Are tired of hearing what foods are good or bad for them 65%

Source: Gallup Survey for the International Food Information Council and National Center for Nutrition and Dietetics, the American Dietetic Association.

"The level of knowledge demonstrated through this survey is a good sign that nutrition education efforts are reaching our nation's youth, despite some recent reports to the contrary," said Thomas E. Stenzel, International Food Information Council (IFIC) executive director.

The July 1991 telephone survey of 407 fourth through eighth graders was sponsored by IFIC and the National Center for Nutrition and Dietetics, the public education initiative of the American Dietetic Association (ADA) and its foundation. The survey found that 95 percent of the children were familiar with the basic food groups and 80 percent of those could identify at least three of the four food groups.

"Children also showed a good grasp of the major nutrition principles—balance, variety and moderation," reported ADA President Mary Abbott Hess. Eighty-four percent agreed it's best to eat small amounts of many different foods and not too much of any one thing. Ninety-seven percent agreed that foods like ice cream, cookies and chips are okay to eat, but not all the time. Also, only 18 percent said they believe it's okay to "eat anything you want, whenever you want to."

"Clearly, these data provide evidence that children are one of the better nutrition-educated segments of society," Hess said. But, close to three quarters of the kids say they "worry" about fat and cholesterol—compared to only 56 percent of the adults polled in last year's survey.

Circle 18 or see FEM, p. IFC→

The rules of the game favor development of healthier foods and food scientists are more than qualified to play. How ever, traps can send players back a few spaces or all the way back to start.

PATRICIA M. DILLON
SENIOR ASSOCIATE EDITOR

Like the game of *Monopoly*® the healthy foods marketing game is filled with tricks that can frustrate even the most experienced of players. While food engineers are capable of developing the healthy foods consumers want, food companies have to be ready to beat challenges that can stifle product development, such as media sensationalism, overblown marketing claims, regulatory hurdles and the public's science phobia.

Press misinformation can plague a perfectly acceptable product such as McDonald's *McLean Deluxe*, a burger which boasts nine percent fat compared to the average burger's 20 percent fat. Based on research carried out by Dale Huffman and associates at Auburn University, AL, McDonald's low-fat burger contains 90 percent lean beef, nine percent water and one percent encapsulated salt, carrageenan (a derivative from sea weed) and natural beef flavor.

While the press referred to this breakthrough as a "seaweed burger," a sharp Washington Post reporter decided to follow up on the story and discovered that all fast food chains use carrageenan in their milk shakes—thus alleviating the reporters' (and hopefully readers') apprehension of this "new" ingredient.

When asked by *FE* how it combats negative press, a McDonald's spokesperson said the chain is only concerned about informing its customers

Food	Phytochemical	Benefit
Garlic	Sulfur compounds	Retards tumors, reduces cholesterol.
Licorice root	Triterpenoids	Stifles rapid cell division, promotes normal cell growth.
Flaxseed	Lignans	Blocks cancer-causing prostraglandins.
Soybeans	Isoflavins	Inhibits enzymes that change normal cells to cancer cells.
Parsley	Polyacetylenes	Blocks prostraglandins.
Citrus fruits	Flavonoids	Regulates cell division.

Source: National Cancer Institute.

Future healthy foods may result from studies the NCI is conducting on known cancer-preventive foods, such as these. The best candidates will be studied in various combinations to increase their efficacy.

through in-store leaflets and ignores outside flak. However, industry sources say that vunerability to being a "seaweed burger" and the recent increase in the price of carageenan, has spurred McDonald's to consider switching from carageenan to a starch replacer.

A shot in the foot

Sometimes a company doesn't need outside help to shoot itself in the foot. Generally, the marketing department pushes R&D to develop formulations that fit marketing's advertising claims. However, as in the case of high-fiber cereals, companies have gotten into trouble with both state attorney generals and the FDA.

How can food companies avoid shooting themselves in the foot with sweeping health claims? First, remember the age of the mass market is dead, said Lauren Swann, president of Concept Nutrition, Inc., a Bensalem, PA firm specializing in marketing communications and regulatory affairs. While speaking at the Healthy Foods Marketing and Positioning Conference sponsored by IBC USA Conferences in Washington, DC in late October, Swann recommended that food companies divide their market into segments. For example, she said, not everyone is liable to develop heart disease, so don't market all high-fiber cereal strictly to heart attack candidates. Swann also urged food companies to be more socially responsible to gain back the trust lost by misleading claims. As an example, Swann challenged food companies to advertise with normal serving sizes and to avoid jumping on nutrient bandwagons by overadvertising one nutrient at the expense of a well-balanced diet.

While marketing drives R&D, better communication between the departments can nip potential problems. For instance, an executive at one large firm that formed as a result of a megamerger, said the corporation was still struggling with two conflicting mindsets. One company clings to its pre-merger mentality that unofficially decrees that R&D and marketing are to avoid contact with one another. The other company, which has had greater success with new products, is struggling to transplant an updated concept which encourages more interaction between R&D and marketing. Teams from marketing and R&D (and other departments) meet at least once every two weeks. "You'd be surprised how divergent we get if we miss our meetings," the exec added.

Regulatory worms

Some low-fat formulations have opened a can of regulatory worms because they clash with FDA standards of identity. As an example, Simplesse's *Simple Pleasures* non-fat frozen dessert can not legally be called a non-fat ice cream because by its very definition, ice cream means it contains fat. Ironically, laws originally designed to protect the public from fraudulent products are hamstringing the efforts of food companies trying to formulate healthier foods. The improved foods can be formulated but must be marketed under less attractive names. "If a healthier, lower-fat product is available—and there are countless examples—food manufacturers should be able to market the product under a familiar, standard name," said said Ellen Haas, executive director of the Washington, DC-

based special interest group, Public Voice for Food & Health Policy. She outlined current choices industry has, which include, first, using unfamiliar names. Second, going through a lengthy, expensive regulatory process to amend the standard or establish a new one. Third, not marketing the product at all. These, Hass acknowledged, "are not choices at all."

Although science can make a non-fat ice cream, the FDA debates use of the term. "Some within the agency argue, saying fat-free ice cream is an oxymoron," said Lynn Larsen, FDA spokesperson. "However, industry maintains that consumers understand the difference," he added.

In a similar quandry, Land O'Lakes was allowed under Minnesota law to market its *Light Butter* (containing less than 80 percent milkfat). However, the FDA objected and discussions are expected to continue for a few more months, said Terry Nagle, Land O'Lakes Inc. spokesperson. In the meantime, the company is distributing Light Butter in Minnesota and has been granted temporary marketing permits (of undefined duration) in New York and Wisconsin, he added.

FDA's proposals (due November 8) under the new nutrition law is expected by both Land O'Lakes and the butter trade groups to cover light butter. However, it is unclear whether state laws will be preempted by the law. Marketers of low-fat and healthy foods contacted by *FE* await FDA rulings that will finalize exact definitions of label descriptors, such as *light, low-fat* and *non-fat,* (among other issues).

Recent actions from the FDA may be interpreted as being more liberal toward non-fat labeling. In late August, the agency granted two more temporary permits to test market non-fat cottage cheese to Marigold Foods,

Low-fat ground beef has gone beyond food service to reach the retail level. (Source: ConAgra, Inc.)

Food as drug legislation sought

Foods sold for disease prevention—such as extract of garlic which research has shown prevents cancer (see main copy)—walk a thin line between being food and drug. As a result, state attorney generals, followed by the FDA, have swooped down on foods that insinuate they can cure illnesses. Remember the flap over Kellogg's *Healthwise* and General Mills' *Benefit* cereals that cited hospital studies backing their products as aids in fighting heart disease. State attorney generals balked, saying foods that claim to help prevent disease are essentially drugs.

However in their zest to curb exaggerated claims, the G-Men are crippling U.S. food industry competitiveness. While U.S. food regulatory agencies struggle with food versus drug definitions, European and Japanese companies are marketing foods that have health benefits. Japan is already forging ahead in the world race to patent plant-derived products while the European Community is considering regulatory procedures for foods with health benefits.

Meanwhile, in laboratories worldwide, research is examining the use of food ingredients to prevent and treat diseases. The National Cancer Institute (NCI) has embarked on an ambitious program to examine the role of foods in cancer prevention. In the past, funding has been largely for chemopreventive drugs.

However, the research findings will fall short of the mark if present laws fail to change. Presently, there is no system to approve of, or grant marketing rights for, foods with health benefits, according to William Curran of Harvard Medical School and a member of the Nutraceutical Advisory Group. Companies have no incentive to invest in further research and, as a result, the public will continue to be at the mercy of media reports of suggestive but inconclusive clinical studies, he added.

The Foundation for Innovation in Medicine, Cranford, NJ, headed by Dr. Stephen DeFelice, drafted proposed regulatory reforms which would create a commission to review foods with health claims.

While J.B. Cordaro, president of Council for Responsible Nutrition, agreed that foods with health benefits should be able to be marketed, he said creating a new regulatory agency is unrealistic because Congress and present regulators would resist giving up their authority. The best approach for food companies is to be ready to comment on FDA's new proposals due early this month in accordance with the Nutrition and Education Act of 1990, Cordaro said. His group has already submitted proposals on labeling and claims.

Height	1959 range	1983 range	Change (in lower/higher limits)
Men (Medium frame, weight in pounds)			
5' 2"	114-126	128-138	14/12
5' 7"	131-145	140-152	9/7
6' 0"	151-168	155-169	4/1
6' 3"	165-183	166-182	1/−1
Women (Medium frame, weight in pounds)			
5' 2"	109-122	118-132	9/10
5' 5"	120-135	127-141	7/6
5' 8"	132-147	136-150	4/3

Source: Metropolitan Life Insurance Co.

Weight reduction attributes to the popularity of low-fat foods. While no studies prove that Americans are gaining weight over time, many health experts point to Metropolitan Life Insurance charts as proof.

Inc. and Oak Farms Dairy. Last year, the agency approved of a temporary permit to Kroger Co. to market a non-fat cottage cheese. The permit was ammended from a 0.1 percent to less than 0.4 percent milkfat or less than 0.5 grams per serving. Both of the two new temporary permits (a duration of 15 months) stipulate less than 0.5 percent milkfat and less than .5 gram fat per serving.

USDA also loosened its collar with a late August ruling that allows greater use of non-meat proteins to emulsified meat products such as hot dogs and sausages. "High quality vegetable proteins, such as isolated soy proteins, have an additional advantage over other non-meat proteins, like egg and milk proteins, because they match the taste and texture of meat proteins in the final product," said Daniel L. Camerer, director of meat industry markets, Protein Technologies, Int'l.

Low-fat effects

As low- and non-fat products gain wider acceptance, there has been some criticism about the possible health effects of fat replacers. While most Americans consume overly high amounts of fat, some objections to low-fat foods have been that consumers would risk vitamin deficiencies from not being able to get enough fat-based vitamins, such as Vitamin A and E. This possibility was dismissed by Robert Kuczmarski, a health statistician trained in public health nutrition with the National Center for Health Statistics, Washington, DC. "This would only occur if people ate non-fat foods exclusively without balancing them with other foods," he said, adding that such a scenario was unlikely.

The possibility that obesity may have peaked in the 1990s was raised by Kuczmarski. He compared the national campaign against fat to the campaign against heart disease which was a great success since heart disease is now in decline once consumers reacted positively to the national campaign emphasizing diet, exercise and not smoking.

Fear of science

Will the public's irrational fear of things scientific hamper the marketability of healthy foods formulated through biotechnology? One discouraging development is that Monsanto's bovine somatotropin (BST) cleared regulatory hurdles, only to be snagged by special interest groups.

Currently, the BST controversy may stall companies from making the necessary time and financial commitment to develop new bioengineered products. In addition, Decision Resources says there is a real need for vigorous biotech public relations.

Calgene, a company which pioneered a bioengineered tomato that stays fresh longer, is preparing a campaign to win consumer approval. The first step is to get FDA approval which will convince consumers biotech products are safe, said Daniel Wagster, Calgene spokesperson. Secondly, the company plans to launch an education program to reach special interest groups. Calgene's educational efforts might very well be a model for other food companies. Better educated consumers make the best customers—which would alleviate some of the regulatory constrictions, misperceptions and politics that have, up until this point, made marketing healthy foods a game of jeopardy. ▲